

MEDICAL REPORT

ON THE

SANITARY CONDITION

OF

CARLISLE

DURING THE YEAR 1897,

BY

WILLIAM BROWN, F.R.C.S.E.,

MEDICAL OFFICER OF HEALTH.

With Special Report on Tuberculosis.

CARLISLE :

CHAS. THURNAM AND SONS, STEAM PRINTERS, 11 ENGLISH STREET.

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1897.

CARLISLE URBAN DISTRICT COUNCIL.

Annual Report of the Medical Officer of Health.

TO THE CARLISLE URBAN DISTRICT COUNCIL.

Gentlemen,

I have the honour of submitting to you my Annual Report on the Health of Carlisle during the year 1897, with an account of the Sanitary Work performed.

STATISTICAL SUMMARY.

(Compared with that of 1896.)

	1897	1896
Area of District in Acres ...	2,029	2,029
Estimated Population at Midsummer	41,700	41,300
Density of Population per acre ...	20·5	20·3
Inhabited Houses (1891 census)...	7,624	7,624
Rateable Value of District ...	£179,783	£176,948
Births	1,324	1,246
Birth-rate	31·7	30·1
Deaths	811	753
Death-rate	19·4	18·2
Zymotic Deaths	54	30
Zymotic Death-rate	1·3	·7
Infant Mortality	178	171
Ratio of Infant Deaths to Births per 1,000	134	137

Infectious Cases Notified	...	431	289
Infectious Cases Isolated at Crozier			
Lodge Fever Hospital	...	98	57

REGISTRATION SUB-DISTRICTS.

		1897	1896
St. Mary Sub-District—Population		25,344	25,100
St. Cuthbert's do.	do.	16,356	16,200

VITAL STATISTICS.

During the year the births of 1,324 children have been registered. Of these 682 were boys and 642 girls. The total gives a rate of 31·7 per 1,000 of the estimated population. Last year the birth-rate was 30·1 per thousand of the estimated population.

MORTAL STATISTICS.

During the year ending December 31st, 811 deaths were registered in the Carlisle Urban Sanitary District. Of these 409 were males and 402 were females. The death-rate was equal to 19·4 per 1,000 of the population estimated to the middle of the year. Last year (1896) 753 deaths were registered, the death-rate being equal to 18·2 per 1,000 of the estimated population. The following table gives the deaths of persons not belonging to the Carlisle Urban District. Making allowance for such deaths a death-rate of 18·4 is obtained:—

Where Died.	Deaths of persons not belonging to the Carlisle Urban Sanitary District.	
Cumberland Infirmary -	-	37
Fusehill Workhouse -	-	3
Fever Hospital, Crozier Lodge -	-	1
Her Majesty's Prison -	-	1
		—
		42
		—

CHART
Weekly Deaths from all causes. Red
Do Do " zymotics. Black
in the Urban District of Carls

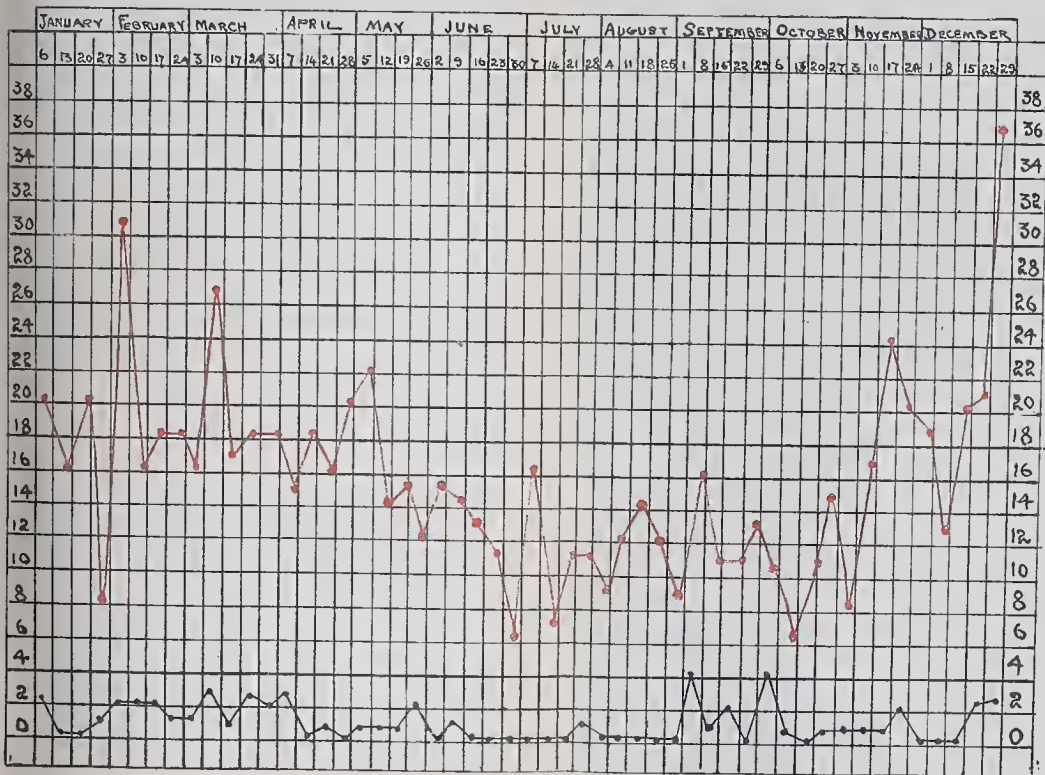




Table showing the death-rate of Carlisle from 1874 to 1897 inclusive :—

Year.	Deaths from all causes.		Deaths from Principal Zymotic Diseases.	
	No. Registered.	Rate per 1000 of Population.	No. Registered.	Rate per 1000 of Population.
1874	1055	32·6	367	11·3
1875	934	29·2	201	6·3
1876	800	25·0	100	3·0
1877	750	23·0	55	1·7
1878	828	23·5	83	2·3
1879	818	23·5	76	2·0
1880	777	22·2	106	3·0
1881	717	20·0	67	1·8
1882	852	23·6	189	5·0
1883	779	21·0	67	1·8
1884	783	21·0	38	1·0
1885	769	20·3	66	1·7
1886	745	19·4	62	1·6
1887	772	19·9	75	1·9
1888	722	18·5	59	1·5
1889	723	18·1	69	1·7
1890	792	19·5	65	1·6
1891	789	20·1	63	1·6
1892	805	20·2	55	1·3
1893	868	21·6	145	3·6
1894	780	19·2	44	1·1
1895	794	19·4	33	0·8
1896	753	18·2	30	0·7
1897	811	19·4	54	1·3

DEATHS FROM THE EIGHT PRINCIPAL ZYMOTIC DISEASES.

The Returns show 54 deaths from the principal Zymotic Diseases, representing a Zymotic death-rate of 1·3 per 1,000 of the estimated population. The number registered from each Zymotic Disease being as follows :—

Small Pox	..	...	...	...	0
Measles	...	...	...	...	1
Scarlet Fever	...	...	...	...	7
Diphtheria	...	...	...	...	10
Whooping Cough	...	...	...	...	24
Typhus Fever	...	...	...	...	0
Enteric Fever	...	...	...	...	3
Diarrhœa and Dysentry	...	...	...	...	9
					—
					54
					—

INFANT MORTALITY.

The deaths of 178 infants under one year of age have been registered. The ratio of infant deaths to births is 134 per 1,000, as compared with

1896	...	...	...	137
1895	...	...	...	142
1894	...	...	...	133
1893	...	...	...	178
1892	...	...	...	123
1891	...	...	...	137
1890	...	...	...	150
1889	...	...	...	142
1888	...	...	...	129
1887	...	...	...	141
1886	...	...	...	146
1885	...	...	...	164

SCARLET FEVER.

258 cases of Scarlet Fever have been notified, as compared with 162 cases last year. The disease was most prevalent during the months of October, November, and December. As to age prevalence 68 cases were in children of from 3 to 6, and 74 in children from 6 to 9 years old. The mortality was 2·7 per cent. of the cases notified. The mortality was greatest during the months of greatest prevalence, which is contrary to what has been observed in London, where the maximum mortality and prevalence do not coincide. The accompanying chart gives the number of deaths from Scarlet Fever for each year from 1874 to 1897, and shows in a striking manner the fall in the mortality since 1874. During the last 23 years there has been no approach to the mortality which occurred in 1874, when the deaths numbered 187. During the last decade, notwithstanding the considerable increase in the population, the number of deaths for each year has never exceeded 21.

CHART SHOWING NUMBER OF DEATHS
EACH YEAR FROM SCARLET FEVER FROM
1874 TO 1897

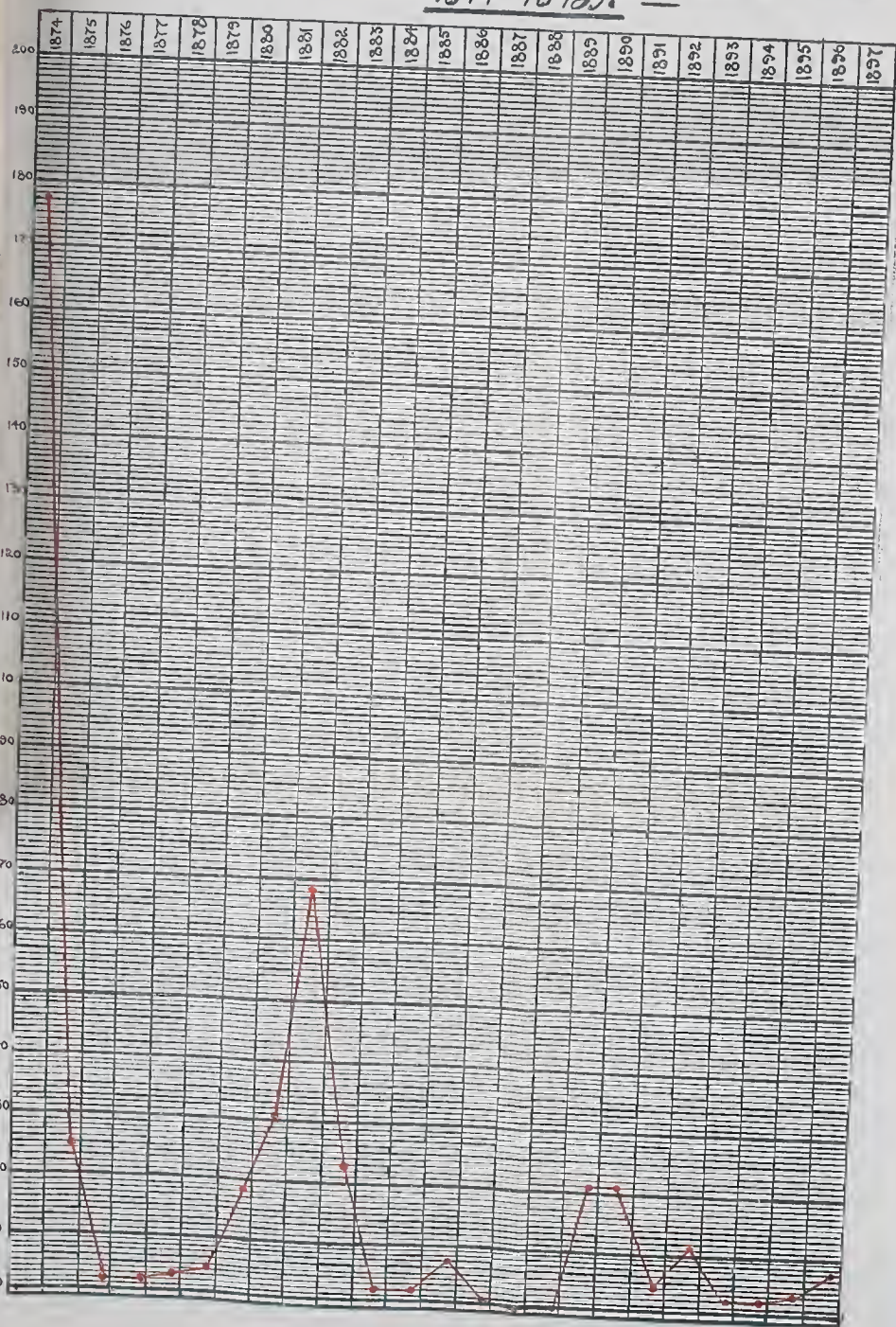


Table showing the number of cases of Scarlet Fever during the year 1897, arranged as to age:—

Under 1 year ...	...	...	...	5
From 1 to 2 years	...	...	...	5
„ 2 „ 3 „	...	...	...	13
„ 3 „ 4 „	...	...	...	18
„ 4 „ 5 „	...	...	...	25
„ 5 „ 6 „	...	...	...	25
„ 6 „ 7 „	...	...	...	30
„ 7 „ 8 „	...	...	...	24
„ 8 „ 9 „	...	...	...	20
„ 9 „ 10 „	...	...	...	21
„ 10 „ 11 „	...	...	...	10
„ 11 „ 12 „	...	...	...	10
„ 12 „ 13 „	...	...	...	7
„ 13 „ 14 „	...	...	...	4
„ 14 „ 15 „	...	...	...	4
„ 15 „ 16 „	...	...	...	6
„ 16 „ 17 „	...	...	...	2
„ 17 „ 18 „	...	...	...	4
„ 18 „ 19 „	...	...	...	0
„ 19 „ 20 „	...	...	...	2
Over 20 years ...	...	...	...	8
Age not ascertained	...	...	...	15
Total ...				<hr/> 258 <hr/>

Number of cases of Scarlet Fever reported each week from 1st January to 31st December, 1897:—

From the 1st to the 2nd January ...	0
Week ending 9th „ ...	3
„ „ 16th „ ...	0
„ „ 23rd „ ...	1
„ „ 30th „ ...	0—4
„ „ 6th February ...	0
„ „ 13th „ ...	0
„ „ 20th „ ...	4
„ „ 27th „ ...	3—7

Week ending 6th March	...	...	1
„ „ 13th „	...	...	1
„ „ 20th „	...	...	1
„ „ 27th „	...	...	3—6
„ „ 3rd April	...	...	2
„ „ 10th „	...	...	1
„ „ 17th „	...	...	4
„ „ 24th „	...	...	2—9
„ „ 1st May	...	...	2
„ „ 8th „	...	...	2
„ „ 15th „	...	...	4
„ „ 22nd „	...	...	3
„ „ 29th „	...	...	1—12
„ „ 5th June	...	...	2
„ „ 12th „	...	...	1
„ „ 19th „	...	...	0
„ „ 26th „	...	...	0—3
„ „ 3rd July	...	...	0
„ „ 10th „	...	...	1
„ „ 17th „	...	...	0
„ „ 24th „	...	...	0
„ „ 31st „	...	...	0—1
„ „ 7th August	...	...	1
„ „ 14th „	...	...	0
„ „ 21st „	...	...	0
„ „ 28th „	...	...	1—2
„ „ 4th September	...	...	0
„ „ 11th „	...	...	3
„ „ 18th „	...	...	11
„ „ 25th „	...	...	1—15
„ „ 2nd October	...	...	10
„ „ 9th „	...	...	15
„ „ 16th „	...	...	21
„ „ 23rd „	...	...	14
„ „ 30th „	...	...	30—90
„ „ 6th November	...	...	18
„ „ 13th „	...	...	20
„ „ 20th „	...	...	22
„ „ 27th „	...	...	8—68

Week ending 4th December	...	13
„ „ 11th „	...	2
„ „ 18th „	...	10
„ „ 25th „	...	11
From the 25th to the 31st December		5—41
		<hr/> 258 <hr/>

MEASLES.

There has been one death from Measles, as compared with the same number last year. The mortality from the disease during the last 20 years has been as follows :—

1878	...	...	...	...	2
1879	...	...	...	...	22
1880	...	...	...	...	4
1881	...	...	...	...	0
1882	...	...	...	...	36
1883	...	...	...	...	11
1884	...	...	...	...	0
1885	...	...	...	...	22
1886	...	...	...	...	4
1887	...	...	...	...	16
1888	...	...	...	...	3
1889	...	...	...	...	44
1890	...	...	...	...	1
1891	...	...	...	...	22
1892	...	...	...	...	3
1893	...	...	...	...	77
1894	...	...	...	...	20
1895	...	...	...	...	5
1896	...	...	...	...	1
1897	...	...	...	...	1

TYPHOID FEVER.

Nineteen cases of Typhoid Fever have been notified as compared with 13 cases last year.

Tabular statement of cases of Typhoid Fever during the year 1897, with the insanitary conditions present, and the action taken thereon.

Date.	Locality.	Insanitary conditions present, and action taken.	Result.
January...	Scotch Street	Instructions given as to disinfection	One case No extension
"	London Road	Instructions given as to disinfection	One case No extension
February..	Close Street	Instructions given as to disinfection	One case No extension
March.....	John Street	Removed to Crozier Lodge. House disinfected	One case No extension
"	Linton Street	Instructions given as to disinfection	One case No extension
May.....	Warwick Square	Instructions given as to disinfection	One case No extension
"	Newcastle Street	Removed to Crozier Lodge. House disinfected	One case No extension
July.....	" "	Instructions given as to disinfection	One case No extension
August....	Tait Street	Choked and defective drain and water closet. Instructions given as to disinfection	One case No extension
"	River Street	Removed to Crozier Lodge. House disinfected	One case No extension
"	South Western Terrace	Instructions given as to disinfection	One case No extension
September	Denton Street	Removed to Crozier Lodge. House disinfected	One case No extension
"	Corporation Road	Instructions given as to disinfection	One case No extension
October....	Union Street	Instructions given as to disinfection	One case No extension
November	Currie Street	Instructions given as to disinfection	One case No extension
"	Market Street	Instructions given as to disinfection	One case No extension
"	South Petteril Street	Instructions given as to disinfection	One case No extension
December..	Chiswick Street	Removed to Crozier Lodge. House disinfected	One case No extension
"	Union Street	Removed to Crozier Lodge. House disinfected	One case No extension

DIPHTHERIA.

Thirty-seven cases in 33 houses have occurred as compared with 22 cases in 20 houses last year. The mortality has been about 1 in 3 of the reported cases. In three of the houses minor sanitary defects were found to exist.

Tabular Statement of Cases of Diptheria during the year 1897, with the insanitary conditions present, and the action taken thereon.

Date.	Locality.	Insanitary conditions present, and action taken.	Result.
January ...	Duke Street	Removed to Crozier Lodge. House disinfected	One case No extension
„	South Petteril Street	Instructions given as to disinfection	One case No extension
„	Lewthwaite's Square	Removed to Crozier Lodge. House disinfected	One case No extension
„	Port Road		
„	Portland Place	Cellar kitchen damp. Instructions given as to disinfection	Two cases No extension
„	Shakespeare Street	Removed to Crozier Lodge. House disinfected	One case No extension
February..	Key's Lane	Removed to Crozier Lodge. House disinfected	One case No extension
„	Berlin Terrace	Instructions given as to disinfection	One case No extension
„	Hawick Street	Removed to Crozier Lodge. House disinfected	One case No extension
March.....	New Bank Lane	Instructions given as to disinfection	One case No extension
„	Graham Street	Instructions given as to disinfection	One case No extension
„	Lorne Crescent	Removed to Crozier Lodge. House disinfected	One case No extension
„	Gloucester Road	Instructions given as to disinfection	One case One extension
„	Cumberland Street	Removed to Crozier Lodge. House disinfected	One case No extension
„	Gloucester Road	Instructions given as to disinfection	One case No further extension
April.....	Cecil Street	Instructions given as to disinfection	One case No extension
„	Lindesfarne Street	Instructions given as to disinfection	Two cases No extension
May.....	Rigg Street	Instructions given as to disinfection	One case No extension
June.....	Colville Street	Instructions given as to disinfection	Three cases No extension
„	George Street	Instructions given as to disinfection	One case No extension
August.....	Charlotte Street	Instructions given as to disinfection	One case No extension
„	Colville Street	Instructions given as to disinfection	One case No extension
September	Spencer Street	Instructions given as to disinfection	One case No extension
„	Orfeur Street	Instructions given as to disinfection	One case No extension

Tabular Statement of Cases—continued.

Date.	Locality.	Insanitary conditions present, and action taken.	Result.
October...	Howe Street	Instructions given as to disinfection	One case No extension
"	Lindesfarne Street	Instructions given as to disinfection	One case No extension
November	Alexander Street	Drains choked. Instructions given as to disinfection	One case No extension
"	Grey Street	Instructions given as to disinfection	One case No extension
"	South John Street	Instructions given as to disinfection	One case No extension
"	Willow Holme	Kitchen wall very damp. Instruc- tions given as to disinfection	One case No extension
"	South John Street	Instructions given as to disinfection	One case No extension
December	Denton Crescent	Instructions given as to disinfection	One case No extension
"	Sowerby Street	Instructions given as to disinfection	One case No extension
"	Devonshire Walk	Instructions given as to disinfection	One case No extension

EPIDEMIC INFLUENZA.

Epidemic Influenza prevailed to a slight extent during the early part of the year, also during the summer, and again towards the close of the year. One death has been registered from the disease.

During the last two years several cases of Influenza were complicated with Peritonitis of a severe type.

NOTIFICATION OF INFECTIOUS DISEASES.

431 cases of Infectious Diseases have been notified, as compared with 288 cases during the year 1896. The following table gives the number of cases reported during each quarter of the year:—

Table, showing the number of Notifications to the Sanitary Authority during the year, of each disease specified in the Act.

Nature of Infectious Disease.	Number of Notifications sent in.				Total.
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	
Small Pox	0	0	0	0	0
Diphtheria	15	8	4	10	37
Membranous Croup ...	4	3	0	0	7
Erysipelas	30	25	13	33	101
Scarlet Fever & Scarlatina	19	22	21	196	258
Typhoid & Enteric Fever	5	2	6	6	19
Typhus Fever	0	0	0	0	0
Relapsing Fever	0	0	0	0	0
Continued Fever	0	0	0	0	0
Puerperal Fever	4	0	2	3	9
Totals	77	60	46	248	431

ISOLATION OF INFECTIOUS DISEASES.

The Sanitary Authority has isolated at Crozier Lodge 98 cases of Infectious Diseases during the year, consisting of 85 of Scarlet Fever, 5 of Typhoid, 7 of Diphtheria, and 1 of Membranous Croup.

Last year 57 cases of Infectious Diseases were isolated, viz., 50 of Scarlet Fever, 4 of Typhoid Fever, 2 of Diphtheria, and 1 of Small Pox.

FACTORY AND WORKSHOP ACT, 1891 & 1895.

The Factories and Workshops so far as they have been visited were, with the exception of two cases where overcrowding occurred, found to be in a satisfactory condition.

COMMON LODGING-HOUSES.

The Common Lodging-Houses have, on the whole, been maintained in a satisfactory state during the year. One Lodging-House which formed part of the condemned property in Jane Street has been abolished.

INSANITARY HOUSE PROPERTY.

One block of insanitary property consisting of five tenements in Jane Street, Willow Holme, was reported upon during the year, and condemned as unfit for human habitation. The property is now owned by the New Brewery Company who have commenced to put the property into habitable condition.

MEAT INSPECTION.

During the past year, I have been called to examine the carcasses of 47 oxen, 4 sheep, 2 lambs, and 1 pig as compared with 35 oxen, 15 sheep, 10 lambs, and 2 pigs last year. Forty-three of the carcasses were pronounced unfit for human food; 45 of the carcasses of beef were affected with tuberculosis.

TUBERCULOSIS.

In an annual report on the Health of Carlisle of a few years ago under the subject of Tuberculous Meat, I made the following observation:—"That there is real risk in eating the flesh of tubercular animals is unquestionable, but it is infinitesimal compared with the risks of partaking of milk derived from tubercular cows. On several occasions during my visits to the Public Slaughter House I have seen the udders of cows affected with marked tubercular disease. In such cases the tubercular infection passes directly into the milk, and as this article of food is generally taken in the uncooked state, the danger of infection becomes very great. Until we in this country adopt the system of veterinary inspection of animals, such as exists in Denmark, milk infection will constitute the real danger of tuberculosis being transmitted from animals to human beings."

Further experience, gained by a systematic examination of the various parts of tubercular carcasses at the Carlisle Public Slaughter House, has afforded additional evidence of the truth of the opinion expressed in the foregoing statement as to the risks of transmission of bovine tuberculosis to man from the ingestion of milk derived from udders affected with tubercular disease.

The life history of the specific micro-organism, which during recent years has been found to be the cause of human and animal tuberculosis, is now as thoroughly worked out, and perhaps even better than that of the germ producing the well-known disease Anthrax, so fatal to man and animals.

A tiny drop of anthrax blood taken from an animal dead of anthrax, when injected under the skin of an animal of the Rodent class like the guinea-pig, is followed almost invariably by the death of the animal in the course of twenty-four to forty-eight hours. A guinea-pig treated in a similar manner with the tubercular virus dies almost equally surely, though the deadly process is slower, owing to the invading organism in the case of tubercle taking a longer time to accomplish its mortal effect.

The grave question of the possibility of an organism so destructive to human life as the tubercle microbe being present in milk obtained from a tubercular udder of the Cow is no chimerical notion, but one which has received a positive and final answer by microscopical demonstration, and simple experimentation, of a harmless kind, upon healthy animals susceptible to tuberculosis.

The tubercular conditions met with in the carcasses of bovine cattle at the Carlisle Public Slaughter House are as follows, arranged irrespective of their order of frequency :—

Tuberculosis of—

The lungs, and their covering the pleural membrane (consumption).

The pericardium or heart bag.

The bowels, and their containing sac the peritoneum.

The liver, spleen (melt), and pancreas (sweetbread).

The kidneys, bladder, and uterus (womb).

The brain and its membranes.

The eye.

The lymphatic glands of the body.

The bones.

The udder or milk gland.

When we consider the tubercular conditions present in the human subject, we find that they are precisely the same in localisation or parts affected as come under observation in bovine tuberculosis, and every medical man engaged in general practice in Carlisle is confronted with most of the foregoing conditions among his patients in the course of a single year. In England lung tuberculosis or consumption is remarkably common, and tuberculosis of the brain and its membranes, an almost uniformly fatal disease, is of frequent occurrence. Tuberculosis of the lymphatic glands, the kidneys, bladder, bones and joints form a large portion of the cases which present themselves for treatment at the Cumberland Infirmary and the Carlisle Public Dispensary.

The fatality from the disease in this country is deplorable. A micro-parasitic disease, like those of the zymotic class, it has a mortality in many English towns enormously greater than that from all the so-called zymotic diseases put together. In Carlisle the deaths from tuberculosis for the past three years have been considerably more than double the deaths from the principal zymotic diseases, including scarlet fever, measles, diphtheria, small pox, whooping cough, typhus fever, typhoid fever, continued fever, and diarrhoea. The principal tubercular diseases, including lung tuberculosis (consumption), tuberculosis of the brain and its membranes, and tabes mesenterica (tuberculosis of the abdominal lymphatic glands, &c.), constitute 10·2 per cent. of the total number of deaths from all causes in Carlisle during the past ten years. Other English towns have a similar and even worse experience. Tabes mesenterica, or tuberculosis of the bowels and the lymphatic glands interspersed between their coils, is a common cause of death and a still more common disease in Carlisle. It is a highly significant fact that these very two abdominal structures are the ones which first become tubercular when a guinea-pig or rabbit is fed upon milk containing small pieces of crushed tubercle taken from a bovine source. Perhaps there is no Laboratory experiment upon animals so impressive from its overwhelming importance than the artificial production of tuberculosis in the abdominal lymphatic glands of a guinea-pig or rabbit by feeding it upon bovine tubercle, or upon milk obtained in the ordinary way from the tubercular udder of a living cow. The death of the animal experimented upon usually takes place in from about six to eight weeks from the onset of infection, corresponding pretty much in point of time with the duration of some of the more rapid forms of human tuberculosis such as acute tuberculosis of the brain and its membranes, and acute tuberculosis of the lung (galloping consumption). A *post-mortem* examination shows that though the coats of the bowels may or may not be visibly affected, the numerous lymphatic glands connected with the conveyance of the products of digestion from the bowels into the blood are, relatively to the size of the animal enormously swollen from tubercular growth, in the substance of which the deadly tubercle micro-organism can be easily seen with the microscope, and its fatal specific properties tested upon various animals. Another point worthy of note with regard to the disease tabes mesenterica

is the fact that it is most common in young people under twelve years of age, or in other words among those of the population who are the chief consumers of cow's milk.

Finally, medical science has fully established the fact that human tuberculosis and bovine tuberculosis are one and the same disease produced by the same germ and both easily transmitted to healthy animals such as guinea pigs, rabbits, kittens, and young calves, by the ingestion of milk containing the specific tubercle microbe.

I am induced to bring this subject before the Health Committee at the present time owing to the increased number of tubercular milk glands which have come under observation at the Carlisle Public Slaughter House during the past year. Thus, of the thirty cow carcasses condemned for general tuberculosis as unfit for human food at the Slaughter House, one in every five had marked tubercular disease of the udder, some of which were in the stage of suppuration with foul smelling matter in their interior. A microscopic examination of portions of the udders subjected to this kind of investigation showed the tubercle germ in abundance. In a few of the more advanced cases of tubercular udder disease, the milk ducts or channels for the conveyance of the milk secretion to the teats were very much dilated, and partially filled with soft tubercular growth projecting into their interior. A more favourable condition for the production of milk infection could hardly be conceived. I believe I am correct in stating that some of the cows with the tubercular milk glands had been milked until within a short period of their removal to the Slaughter House. Moreover, the present time is a favourable one for taking action, as the public are now sufficiently educated on the subject of tuberculosis to appreciate the dangers that all classes of the community incur in consuming milk without any guarantee as to its being free from tubercular infection.

I beg to submit to you the following proposals:—

1. That all dairy cattle from which milk is derived for distribution in the Carlisle Urban Sanitary District be subjected to regular veterinary inspection.

2. That a more rigid enforcement of the City Bye-Laws as to the cubic space of the Carlisle Cowsheds be carried out.

3. That, as an auxiliary measure, the Carlisle Urban District Council extend the provisions of the Infectious Diseases Notification Act to pulmonary phthisis, tubercular meningitis, and tabes mesenterica.

Tubercular disease of the udder in the living animal is, as a rule, easy of detection, and in a case of doubt the milk could be subjected to a microscopical examination with or without the administration of a dose of tuberculin to the animal to dislodge the germ from the milk gland. The general use of tuberculin for the detection of tuberculosis in milch cows is perhaps too advanced a measure to recommend in Carlisle at the present time, though it is systematically carried out in New York City and some parts of the Continent.

A liberal allowance of air space in cowsheds is important. Rearers of dairy cattle are well aware of the infectious nature of bovine tuberculosis and of its spread being very much favoured by overcrowding of animals in confined sheds. Reasoning by analogy from what is known of human tuberculosis we may fairly conclude that the spread of bovine tuberculosis is due apart from milk infection during the calf stage of existence to the presence of the specific microbe in the discharges from the lungs, bowels, bladder, and vagina of the affected animal. Hence the importance of adequate air space, free ventilation, and cleanliness.

Notification of the three principal tubercular diseases would lead to an enquiry as to the source of infection, and thereby put the Sanitary Authority in a position to take measures to limit the spread of the disease. In Berlin the disinfection of premises vacated by consumptive patients has been required by law for at least seven years, and a similar law has been enforced in New York City for four years.

I am, Gentlemen,

Your obedient Servant,

WILLIAM BROWN,

Medical Officer of Health.

CARLISLE, *January 18th, 1898.*

TABLE I.
BIRTHS, 1897.

QUARTER ENDING.	ST. MARY.			ST. CUTHBERT.			TOTAL FOR CITY.
	Males.	Females.	Total.	Males.	Females.	Total.	
March 31	109	83	192	75	73	148	340
June 30.....	102	116	218	74	74	148	366
September 30	97	83	180	80	82	162	342
December 31...	80	72	152	65	59	124	276
Totals.....	388	354	742	294	288	582	1324

TABLE II.
DEATHS, 1897.

QUARTER ENDING.	ST. MARY.					ST. CUTHBERT.					TOTAL FOR CITY.
	Males.		Females.		Total.	Males.		Females.		Total.	
	Under 5 years	5 and above	Under 5 years	5 and above		Under 5 years	5 and above	Under 5 years	5 and above		
March 31	22	43	18	56	139	20	32	10	43	105	244
June 30	16	52	22	39	129	14	20	8	20	62	191
Sept. 30	13	39	10	35	97	9	21	11	16	57	154
Dec. 31	18	39	15	48	120	27	24	17	34	102	222
TOTALS FOR YEAR	69	173	65	178	485	70	97	46	113	326	811

TABLE III.

Table showing the Annual Birth-rate, Rate of Mortality, Death-rates among Children, Deaths in Public Institutions, and Deaths from Seven Principal Zymotic Diseases, for the Year 1897, and Ten Years preceding.

Year.	Births.		Deaths.		Deaths of Children under one year.			Deaths of Children under 5 years.		Deaths in Public Institutions	Deaths from 7 Principal Zymotic Diseases.	
	No. Registered.	Rate per 1000 of Population.	No. Registered	Rate per 1000 of Population.	No. Registered.	Per centage of Total Deaths.	Per centage of Registered Births.	No. Registered.	Per centage of Total Deaths.		No. Registered.	Rate per 1000 of Population.
1897	1324	31.7	811	19.4	178	21.9	13.4	250	30.8	142	54	1.3
1896	1246	30.1	753	18.2	171	22.7	13.7	250	33.2	123	30	.7
1895	1311	32.1	794	19.4	186	23.4	14.2	270	34.0	123	33	.8
1894	1315	32.4	780	19.2	174	22.3	13.2	256	32.8	132	44	1.1
1893	1389	34.5	868	21.6	248	28.5	17.8	416	47.9	117	145	3.6
1892	1213	30.5	805	20.2	150	18.6	12.3	235	29.2	124	55	1.3
1891	1207	30.8	789	20.1	166	21.0	13.4	245	31.0	114	63	1.6
1890	1215	30.0	792	19.5	183	23.1	15.7	275	34.7	85	65	1.6
1889	1224	30.6	723	18.1	174	24.1	14.2	270	37.3	105	69	1.7
1888	1307	33.5	722	18.5	169	23.4	12.9	253	35.0	95	59	1.5
1887	1214	31.3	772	19.9	172	22.3	14.1	262	33.9	118	75	1.9
Average of 10 years 1887-1896	1264	31.5	779	19.4	179	22.9	14.1	273	34.9	113	63	1.5

TABLE IV.

Showing the number of Deaths at all ages in 1897, from certain groups of Diseases, and proportions to 1,003 of Population, and to 1,000 Deaths from all causes; also the number of Deaths of Infants under one year of age from other groups of Diseases, and proportions to 1,000 Births and to 1,000 Deaths from all causes under one year.

Division I. (Adults).	Total Deaths.	Deaths per 1000 of Population, at all ages.	Deaths per 1000 of Total Deaths at all ages.
1. Principal Zymotic Diseases. .	54	1·3	66·5
2. Pulmonary Diseases ...	125	2·9	154·1
3. Principal Tubercular Diseases	101	2·4	124·5
Division II. (Infants under one year).	Total Deaths.	Deaths per 1000 of Births.	Deaths per 1000 of Total Deaths under one year.
4. Wasting Diseases ...	50	37·7	280·9
5. Convulsive Diseases ...	17	12·8	95·5

1—Includes Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Typhus, Enteric (or Typhoid), and Simple Continued Fevers, and Diarrhœa.

3—Includes Phthisis, Scrofula, Tuberculosis, Rickets, and Tabes.

4—Includes Marasmus, Atrophy, Debility, Want of Breast Milk, and Premature Birth.

5—Includes Hydrocephalus, Infantile Meningitis, Convulsions, and Teething.

TABLE V.

Table showing the Number of Deaths from the principal Zymotic Diseases in the 10 Years
1887 to 1896 and in the Year 1897.

DISEASE.	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	Annual Average of 10 Years 1887—1896	Proportion of Deaths to 1000 Deaths in 10 years, 1887—1896.	Total Deaths in 1897.	Proportion of Deaths to 1000 Deaths in 1897.
Smallpox .....	...	2	...	...	...	...	1	...	...	...	·3	·4	...	...
Measles... ..	16	3	44	1	22	3	77	20	5	1	19·2	25·5	1	1·2
Scarlet Fever	1	...	...	22	21	4	11	2	2	3	6·6	9·0	7	8·6
Diphtheria	3	...	5	6	2	14	11	4	5	3	5·3	7·0	10	12·3
Whooping Cough.....	22	32	8	12	7	23	20	12	7	20	16·3	21·8	24	29·5
{ Typhus	2	1	...	...	...	4	...	...	...	...	·7	·9	...	...
{ Enteric	17	8	1	2	2	3	5	2	4	3	4·7	6·2	3	3·7
{ Simple continued	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea	14	13	11	22	9	4	20	4	10	...	10·7	14·2	9	11
Totals	75	59	69	65	63	55	145	44	33	30	63·8	85·0	54	66·3
Rate per 1000 of population.....	1·9	1·5	1·7	1·6	1·6	1·3	3·6	1·1	·8	·7	1·5	...	1·3	...

TABLE VII.

Mortality from Diarrhoea and Typhoid Fever, 1874—1897.

Year.	DEATHS FROM DIARRHOEA.															Deaths from Typhoid Fever.
	Autumn Quarter.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for Year.	
	No. Registered.	Rate per-1000 of population														
1874	35	4.30	2	2	...	...	1	1	6	20	9	6	...	3	50	23
1875	27	3.27	2	...	4	1	2	4	5	12	10	2	...	2	44	24
1876	12	1.43	3	1	3	3	1	...	2	5	5	1	6	7	37	10
1877	10	1.18	2	1	2	2	2	3	2	6	2	1	3	4	28	5
1878	26	3.02	1	2	1	3	2	2	9	8	9	1	1	1	40	11
1879	4	.46	2	1	1	...	...	2	2	2	...	...	1	...	12	11
1880	31	3.51	...	...	5	...	...	...	3	7	21	5	1	...	42	15
1881	7	.78	...	2	...	2	...	2	2	2	3	3	...	2	18	7
1882	17	1.84	...	1	...	...	...	1	5	7	5	1	...	...	20	9
1883	8	.87	...	2	...	...	...	...	...	3	5	6	...	...	17	8
1884	14	1.50	2	...	...	1	1	1	7	3	4	3	1	...	23	7
1885	4	.42	1	1	1	...	...	1	2	2	...	...	1	1	10	1
1886	8	.83	1	2	...	...	...	2	1	1	6	7	...	2	23	6
1887	7	.72	1	...	1	2	...	2	...	5	2	1	...	...	14	17
1888	8	.82	1	...	1	1	...	...	...	3	5	1	...	1	13	8
1889	6	.60	2	1	...	...	1	...	1	5	1	1	...	1	11	1
1890	15	1.58	...	...	2	...	1	...	1	7	8	2	1	1	22	2
1891	5	.51	1	...	...	...	...	1	1	2	2	1	...	...	9	2
1892	2	.20	1	...	...	...	...	2	...	...	2	1	...	...	4	3
1893	9	.89	...	2	2	2	...	2	...	2	7	1	2	...	20	5
1894	1	.10	...	...	...	...	...	...	...	...	1	1	2	...	4	2
1895	3	.30	2	1	...	1	...	...	1	...	2	3	...	...	10	4
1896	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
1897	4	.21	...	...	2	1	...	...	1	...	3	2	...	...	9	3
Average for 24 years	10.9	1.22	1.0	.8	1.0	.7	.4	1.0	2.0	4.2	4.6	2.1	.8	1.0	20.0	7.7

Other Miasmatic Diseases, Influenza..

2.—*Diarrhoeal Diseases.*Simple Cholera ...
Diarrhoea, Dysentery ...3.—*Malarial Diseases.*Remittent Fever ...
Ague ...4.—*Zoogenous Diseases.*Cowpox and effects of Vaccination ...
Other Diseases (*e.g.*) Hydrophobia,
Glanders, Splenic Fever ...5.—*Veneral Diseases.*Syphilis ...
Gonorrhoea, Stricture of Urethra ...6.—*Septic Diseases.*Erysipelas ...
Pyæmia, Septicæmia ...
Puerperal Fever ...

II.—PARASITIC DISEASES.

Thrush, and other Vegetable Parasitic
Diseases ...
Worms, Hydatids, and other Animal
Parasitic Diseases ...

III.—DIETIC DISEASES.

Want of Breast Milk, Starvation, Mal-
nutrition ...
Scurvy ...
Chronic Alcoholism ...
Delirium Tremens ...

IV.—CONSTITUTIONAL DISEASES.

Rheumatic Fever, Rheumatism of the
Heart ...

TABLE IX—continued.

CARLISLE URBAN SANITARY AUTHORITY.

Deaths registered from all Causes during the year 1897.

CAUSE OF DEATH.	AGES.										TOTALS.	55 to 60
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
IV.—CONSTITUTIONAL DISEASES—continued.												
Rheumatism ...	...	...	...	...	...	...	..	1	...	...	...	...
Gout ...	...	...	...	...	...	...	...	...	...	...	...	...
Rickets ...	...	...	...	...	...	...	...	...	...	...	...	...
Cancer, Malignant Disease ...	...	...	...	...	...	2	4	6	5	1	...	...
Tabes Mesenterica ...	4	3	1	...	...	..	...	...	...	...	...	...
Tubercular Meningitis, Hydrocephalus	4	11	3	1	20	15	8	7	5	2	...	...
Phthisis ...	...	3	1	21	2	1	1	...	...	...	...	...
Other Forms of Tuberculosis, Scrofula	1	2	1	3	2	1	...	...	...	...	...	...
Purpura, Hæmorrhagic Diathesis ...	...	...	...	...	...	...	...	...	...	...	...	...
Anæmia, Chlorosis, Leucocythæmia	...	...	...	1	...	...	...	1	1	1	...	...
Glycosuria, Diabetes Mellitus ...	...	...	...	...	...	1	1	1	...	...	...	...
Other Constitutional Diseases ..	...	...	...	...	...	...	...	...	...	...	...	...
V.—DEVELOPMENTAL DISEASES.												
Premature Birth ...	19	...	...	...	...	...	...	...	...	...	...	...
Atelectasis ...	...	...	...	...	...	...	...	...	...	...	...	...
Congenital Malformations ...	...	...	...	...	...	...	...	...	...	...	...	...
Old Age ...	...	...	...	...	...	...	...	1	12	26	10	...
VI.—LOCAL DISEASES.												
<i>1.—Diseases of Nervous System.</i>												
Inflammation of Brain or Membranes...	...	...	...	1	...	...	1	1	1	1	1	...
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis ...	...	...	1	...	5	6	9	6	6	7	...	..

TABLE IX.—continued.

CARLISLE URBAN SANITARY DISTRICT.

Deaths registered from all Causes during the year 1897.

CAUSE OF DEATH	AGES										Totals.	55 to 60
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
VI.—LOCAL DISEASES—continued.												
Ascites	...	...	...	...	...	...	...	...	...	...	...	...
Cirrhosis of Liver	...	...	...	3	2	1	2	2	...	1	...	...
Jaundice and other Diseases of Liver	...	...	...	...	...	2	1	1	3	...	6	...
Other Diseases of Digestive System	1	...	...	1	...	...	5	...	...	1	...	...
6.—Diseases of Lymphatic System. (e.g., of Lymphatics and of Spleen)	...	...	...	...	...	...	...	...	...	...	...	...
7.—Diseases of Gland-like Organs of Uncertain Use. (e.g., Bronchocele, Addison's Disease) Goitre	...	...	...	...	...	...	...	...	...	...	...	...
8.—Diseases of Urinary System.	...	1	...	1	2	1	2	2	...	...	...	...
Nephritis	...	...	...	...	3	2	2	1	2	...	...	...
Bright's Disease, Albuminuria	...	...	...	...	...	2	...	...	2	...	...	...
Disease of Bladder or of Prostate	...	...	...	...	...	...	...	1	...	1	...	...
Other Diseases of the Urinary System	...	...	3	2	3	2	2	1	...	...	...	...
9.—Diseases of Reproductive System.												
A. Of Organs of Generation.												
Male Organs	...	...	...	...	...	...	...	...	1	...	...	...
Female Organs	...	...	...	1	...	...	...	...	...	...	...	...
B. Of Parturition.												
Abortion, Miscarriage	...	...	...	...	1	...	...	...	...	...	...	...
Puerperal Convulsions	...	...	...	1	...	...	...	...	...	...	...	...

TABLE IX—continued.

CARLISLE URBAN SANITARY DISTRICT.

Deaths registered from all Causes during the year 1897.

CAUSE OF DEATH	AGES.											Totals.	55 to 60
	AGES.												
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards		
VII.—DEATHS FROM VIOLENCE--continued.													
Poison ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Drowning ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hanging ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Otherwise ...	...	...	...	...	...	...	...	...	...	...	...	...	...
4--Execution													
Hanging ...	...	...	...	...	...	...	...	...	...	...	...	...	...
VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.													
Dropsy ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Debility, Atrophy, Inanition, Marasmus	31	1	...	...	...	...	...	...	...	...	1	...	33
Mortification ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tumour ...	1	...	...	2	1	...	...	...	...	...	...	...	9
Abscess ...	1	...	2	...	...	...	...	...	...	...	...	...	4
Hæmorrhage ...	...	...	...	...	...	...	...	...	...	...	...	...	2
Sudden Death (cause not ascertained)	...	...	...	...	...	...	...	...	...	...	...	...	...
Causes not Specified or Ill-defined ...	...	1	...	...	...	...	...	...	...	...	...	...	2

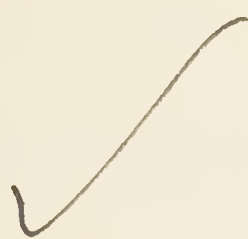
SUMMARY OF TABLE IX.

						No. of Deaths.
I.—Specific Febrile, or Zymotic Diseases—						
1. Miasmatic Diseases	...	...	...	...	...	46
2. Diarrhœal	„	...	...	...	„	9
3. Malarial	„	...	...	...	...	...
4. Zoogenous	„	...	„	...	...	„
5. Venereal	„	...	...	...	...	7
6. Septic	„	...	...	...	...	9
II.—Parasitic Diseases						...
III.—Dietic Diseases						4
IV.—Constitutional Diseases						146
V.—Developmental Diseases						68
VI.—Local Diseases—						
1. Diseases of Nervous System	...	...	...	...	...	80
2. Diseases of Organs of Special Sense	...	...	...	...	...	...
3. Diseases of Circulatory System	...	...	...	...	...	99
4. Diseases of Respiratory System	...	...	...	...	...	125
5. Diseases of Digestive System	...	...	...	...	...	89
6. Diseases of Lymphatic System	...	...	...	...	...	...
7. Diseases of Gland-like Organs of Uncertain Use	...	...	...	...	...	...
8. Diseases of Urinary System	...	...	...	...	...	27
9. Diseases of Reproductive System—						
(a). Diseases of Organs of Generation	...	...	...	...	...	2
(b). Diseases of Parturition	..	...	...	...	...	8
10. Diseases of Bones and Joints	...	...	...	...	...	12
11. Diseases of Integumentary System	...	...	...	...	..	...
VII.—Violence—						
1. Accident or Negligence	...	...	...	...	...	30
2. Homicide	...	...	..	...	...	...
3. Suicide	...	...	...	...	...	...
4. Execution	...	...	...	...	...	...
VIII.—Ill-defined and not Specified Causes						50
Total						811

TABLE X.
LOCALITIES OF DEATHS FROM PRINCIPAL ZYMOTIC
DISEASES.

LOCALITY.	Smallpox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Typhus Fever	Typhoid Fever	Diarrhoea
<i>St. Mary Sub-District—</i>								
Aglionby Street	1
Chatsworth Square	1
Colin Place, Newtown	1	...	...	...	...	...
Denton Crescent	1	...	...	...
Denton Street	2	...	...	...
East Dale Street	1	...	...	...	...
Fever Hospital	3	3	...	...	1	...
Graham Street	1	...	...	...	...
Isabella Street, Newtown	1	...	...	...
Key's Lane, Scotch Street	1	...	...	...
Lismore Terrace	1	...	...	...	...
Petteril Street	1	...	...	...	...	...	...
Port Road	2	...	...	...
Rigg Street	1	2	...	...	1
Sheffield Street	1	...	...	...
Spencer Street	1	...	...	...	1
Warwick Road	1
Westmorland Street	1	...	...	...
<i>St. Cuthbert Sub-District—</i>								
Backhouse's Walk	1
Botchergate	1	...	...	...
Bowman Street	1	...	...	...	...	...
Crown Street	2	...	...	...
Currock Street	1	...	...	...
Greystone Road	1	...	...	...
Howe Street	1	1	...	...	...
King Street	1	...	...	...
Lindesfarne Street	1
Linton Street	1	...
London Road	1
Oswald Street	1	...	...	...	...	...
Pack Horse Lane	1	...	...	...
Redbank Terrace	1
Rome Street	1	...	...	...	...	...
South Street	1	...	...	...
South John Street	1	...	...	...	...
South Western Terrace	1	...
Union Street	1
William Street	2
Wood Street	1
Total	1	7	10	24	...	3	9

2409
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REPORT

OF THE

MEDICAL OFFICER OF HEALTH

OF THE

CARLISLE RURAL DISTRICT COUNCIL

UPON THE

Sanitary Condition of Stanwix and
Edentown.

18th APRIL, 1898.

Medical Officer's Report on Stanwix.

CARLISLE,
18th April, 1898.

Mr. Chairman and Gentlemen,

In accordance with your instructions, I beg to submit my report on the sanitary condition of Stanwix and Edentown.

The first part of the report deals with the result of a house to house visitation in the district. About 500 houses were visited, and the particulars relating to room accommodation, ventilation, water supply, ashpit arrangements, and drainage are stated in parallel columns. Partly owing to the bulk of this part of the report (it covers 44 pages), and partly as the same ground is traversed in the survey of the district which follows, this portion has not been printed, but remains for reference in the Clerk's possession.

In making a general survey of the District it will be expedient to follow a route beginning at the east end of Stanwix and proceeding westwards towards Edentown.

The old property at the north end of Eden Bridges consists of six houses, two entering from the south or riverside and four from the north. Connected therewith is one earth closet and open ashpit placed on the riverside of the property. There is one gully to receive slop water, situated at the back of the house nearest the bridge. While these arrangements are handy for the houses on the riverside of the block, they are at an inconvenient distance for the tenants on the other side, No. 6 being about forty yards distant from the gully and about seventy from the privy and ashpit. The

city water is supplied, but the tap which is against the outside of one of the houses has no sink or grating, so that the roadway is often disagreeably wet.

There are nine houses in Eden Terrace. Each has its privy placed somewhat near the houses and connected therewith are four ashpits. All are covered except one, which is open, wet, and objectionable, and all are emptied from behind through a passage between Nos. 8 and 9. There is a special drain for this property (excepting No. 3), which passes down the back lane through the aforesaid passage and into the river. In No. 9 there is a drain below the kitchen floor. All these houses are supplied with water from the city mains.

The two old houses above Eden Terrace have a privy connected with an open midden. A tap fixed to an old pump hard by furnishes the city water. In the yard in front of the houses there is a wooden cowshed near the main road. This property is drained by a sewer which, passing down the front yard, connects with No. 3 Eden terrace, crosses to the old property beside the bridge, and after receiving the sewage therefrom discharges direct into Eden.

At the top of Stanwix Bank there are some old-fashioned dwelling houses, nine in number, with thatched roofs. The floors of these houses are mostly flagged, and in four of them there is no through ventilation. They are supplied with town's water from an outside tap, and the privy accommodation is about forty yards distant, in the yard behind Albert Place.

In Albert Place there are ten dwelling houses with forty-three people. They get their water supply from a tap in the archway, between Nos. 3 and 4. In the yard at the back there are four privies and one large covered ashpit, which accommodates the tenants of the old property aforementioned, the occupants of the Drove Inn, and the whole of

Albert Place, with the exception of the inmates of Nos. 7, 8, 9, and 10, who use a privy and uncovered ashpit placed against the outside wall of No. 10. In this yard also are the offices of three houses on Scotland Road, two of these have a separate dry earth closet, and the third has its own privy and covered ashpit. All the slopwater from these tenements passes in a drain along the yard through the archway, on to the Brompton Road, and so across Stanwix Bank to join the Duke of Devonshire's sewer in front of Devonshire Terrace. There is no washhouse accommodation connected with this property.

Passing along the Brompton Road we note that the dwelling house at the foot of Church Lane, which is occupied by three households, drains on to the roadside channel, and further on there is a six-inch pipe which discharges on to a gully by the roadside, and is connected with Stanwix House, and a cesspool attached to some property in Kell's Place.

Kell's Place—Turning up the road beside the villa and entering the village from the east, we find on the south side of Kell's Place eleven houses (Nos. 2 to 24). Each has its privy and there are five ashpits. The ashpit to Nos. 2 and 4, which is on the roadside close to the gable end of No. 4, is covered and capacious. The ashpit for Nos. 6, 8, and 10 is large, deep, and also covered. Within a few yards of the dwelling houses Nos. 16 and 18 there is an open ashpit, and at Nos. 20, 22, and 24 the ashpit which is covered is too adjacent to the dwellings. All these houses are supplied with water from the city main.

On the north side of Kell's Place there are thirteen houses, mostly old property, Nos. 1, 3, & 4 use one privy connected with a common ashpit, in a yard which is really a passage at the back of the premises and within a few feet of the houses. There are two privies and a covered ashpit in the yard behind No. 11, which serves Nos. 5, 7, 9, 11, 13, and 15. The last three have direct entrance to the yard by back

doors, but Nos. 5, 7, and 9 enter from the front street. No. 17, a very old property with thatched roof, has a privy and open ashpit in the front of the house by the roadside, while Nos. 19, 21, & 23 are furnished with two privies and a covered ashpit at the bottom of a garden, twenty yards distant from the backdoors. All use the city water furnished from outside taps. There seems to be a scarcity of road gratings in this neighbourhood, and the channelling for surface water is unsatisfactory.

Knowe Terrace—On the east side of Knowe Terrace there are five dwelling houses, Nos. 6, 8, 10, 12, and 14, connected with which there are three ashpits, two covered and one open and objectionable. They are all at a reasonable distance from the houses and with one exception they shew evidence of attention. In one of these houses there is a W.C. Each house has its tap of town's water, and the whole of the property drains from the back into the old Knowe drain. The property of North View, in this neighbourhood, consists of five houses, two of which have W.C.'s, and the remainder privy and covered ashpit. The old property on the west side of Knowe Terrace has already been specially reported on. There are six houses here with about twenty people, accommodated with one privy and a large covered ashpit placed by the side of the street, and they are supplied with the city water from an outside tap at No. 3.

Church Street—Entering Church Street from the east we find that four houses, Nos. 55 to 49, on the north side have suitable privy and ashpit accommodation at the bottom of a back garden. The slop water from these houses is conveniently conveyed along the back of the premises down a lane to the front street and into the Knowe Wall drain. From Nos. 47 to 41 the tenants use the offices in Hutchinson's Court, which are somewhat inconveniently distant. In Hutchinson's Court there are eleven dwelling houses with thirty-seven occupants, and they are accommodated with four

closets connected with a covered ashpit at the top of the court. The houses at the top of the yard are about sixteen feet distant from the offices. The water supply is from an outside tap placed at the entrance to the yard. Nos. 39 and 37 have two privies connected with a midden, which appears to be well attended to, and each house has its water tap indoors. At this point in the street there is a large open piece of waste ground which seems to be at the disposal of the tenant at No. 27. There is a tumble-down privy here with midden alongside abutting on a wall which separates this property from Hodgson's Court. The midden at the date of visit had not been cleaned out since last July. In another part of the garden half-a-dozen pigs are kept.

Hodgson's Court—Hodgson's Court, running a length of hundred yards off the street, is occupied by nine dwelling houses of old standing property, while at the top of the court six tenements have recently been built. About fifty persons reside in the old property, and they are accommodated with three privies connected with a large covered ashpit placed near the entrance to the court. This ashpit was full at the date of inspection, and had not been emptied since the month of May. Between thirty and forty persons occupy the new dwelling houses. They have adequate privy accommodation—three closets connected with two covered ashpits, which are emptied with due regularity. Each of these houses is supplied with its own water tap.

Proceeding along Church Street from Hodgson's Court we come to No. 23. The ashpit and privy here are thirty yards away from the house at the bottom of a back garden. This house is supplied indoors with town's water.

Church Terrace—From this point to the west end of Church Street and continuing round towards Scotland Road is a better class property. All the houses here (eleven in number) are supplied with privy and covered ashpit. The

ashpits are convenient in size, ventilated, and emptied with regularity. Each house is supplied with water from the city mains.

Church Street (South)—Returning now to Church Street, south side, we note that in connection with Stanwix House (No. 34) there is a private drain, which also serves the adjoining cottage property, Nos. 32 and 30. It passes down the garden, and discharges on to a gully on the Brampton Road. Nos. 32 and 30 have an open ashpit with two privies, they are too near the house, and the somewhat confined yard is badly laid.

Hutchinson's Yard—Hutchinson' Yard with its four tenants has a privy which is dark and ill-ventilated. The ashpit is cleaned out monthly but these offices are inconveniently situated. A tap in the yard supplies the city water, but the washhouse convenience is inadequate. In connection with the house at the top of Church Lane there is a privy with open cesspool attached, and the contents of the cesspool percolate through the party wall in to the adjoining garden. The tenants in the small cottage property, viz., Nos. 16, 18, and 20, have two closets and two ashpits in a recess off the front street; the ashpits seem to get every attention, but they are badly situated.

Prospect Place—Prospect Place is a triangular block of property consisting of six dwelling-houses situated at the top of Scotland Road. In the yard there are three W.C.'s flushed with city water and connected with the Scotland Road sewer. There is no washhouse accommodation to this property.

Scotland Road—From Nos. 10 to 34 Scotland Road, east side, the privy and covered ashpit prevails, except at No. 10, where there is a W.C. In several cases in this row the drain (iron pipe) passes underneath the dwelling houses.

Below Mulcaster Crescent, the houses, nine in number, have privy and ashpits. There are eight ashpits, four covered and four open. The houses here are all sewered through separate archways into Scotland Road sewer, except the house No. 38, where the drain passes under the dwelling house No. 36, a more recently built property. Four households here use pump water, the others have the water from the city mains.

Knowe Cottages—The property known as Knowefield Cottages, consists of five dwelling houses with five privies and one open ashpit. There is an open ditch or watercourse which runs behind these houses, receiving the slop water and discharging lower down into the sewer on Scotland Road. These houses are supplied with water from two pumps. Knowefield has W.C. accommodation, and is supplied with water from the city main.

Scotland Road West—At the bottom of Scotland Road, on the west side, is a row of twenty-four newly erected houses with well built privy and covered ashpits considerably distant from the dwellings. One of these houses, No. 71, has an outside W. C., flushed from the main and drained in to the sewer in the back street. From this point (No. 57) to the top of Scotland Road, the wet ashpit prevails, except at No. 39, where there is a W.C. inside and outside the house. There are ten ashpits connected with this row of houses, eight of which are uncovered, and in one instance (No. 55) the ashpit must be emptied through the interior of the house.

Thornton Road, Mulcaster Crescent, and Cheviot Road—With regard to the dwelling houses in the streets leading off Scotland Road, viz., Thornton Road (fifteen houses) on the west, and Mulcaster Crescent with Cheviot Road (thirty-six houses) on the east, it is sufficient to state that they have each separate privy accommodation with

well built ashpits covered and ventilated, all at a reasonable distance from the houses, and all at the date of visit giving evidence of attention. These houses are supplied with water from the city mains. The drains connected with Mulcaster Crescent and Cheviot Road were laid according to plans and specifications of Mr. Chas. Ferguson, and the connections are ready for a water closet system.

Etterby Street—Along the north side of Etterby Street there are forty-three dwelling houses with good open garden space behind. All the houses are accommodated at the back on the privy ashpit system, except No. 52, which has an outside W.C. flushed from the mains and connected with the sewer. There are thirty-five ashpits, nineteen of which are covered and in a satisfactory state, sixteen are open, and of these several are in a more or less disagreeable condition. All of these ashpits are periodically emptied through passages disconnected with the houses, with the following exceptions. In five instances there is no separate passage to the front street; in two of these (Nos. 34 and 62) the ashpits are emptied on to the garden, and in the three remaining (Nos. 36, 48, and 54) the contents of the ashpits are conveyed through the interior of the dwelling houses.

With few exceptions all of these houses are supplied with the city water from the mains; seven families, however (Nos. 34, 38, 40, 42, 44, 46, and 66), derive their water from three pumps, and these pumps are all within measurable distance of the ashpits.

Eden Place—Crossing Gosling Beck at the foot of Etterby Street we come to Eden Place. On the north side are seven dwelling houses. One of these has an outside W.C. discharging into a private sewer at the back of the house, and the others are furnished with privies. There are five ashpits here, two covered (Nos. 20 and 22) and three open (Nos. 10, 14, and 24). Five of these houses are

supplied with the city water from the mains, and two have each a separate pump supply. All these houses, with one exception, drain into a sewer at the back which passes down the field in which is the Observatory into Gosling Beck, the drain of No. 24 passing by a separate passage into the storm water drain in the front street.

On the south side of Eden Place there are eight houses, four of which were unoccupied at the date of visit. Three covered ashpits are connected with the property ; they are all well kept, and at a reasonable distance from the houses.

Etterby Terrace—Running down towards the Eden at this point is Etterby Terrace with six houses. The privy midden system prevails here and there are five open ashpits. All these dwelling houses, viz., seven in Eden Place and six in Etterby Terrace, with the exception of No. 9 Eden Place which has the city water, get their water from a pump in the Square behind Eden Place. This water, although hard, is stated to be otherwise satisfactory ; in warm weather, however, it is apt to go bad and is then disused.

St. Martin's Lane—There are thirteen houses in St. Martin's Lane, five of which were unoccupied at the date of visit. The number of occupants in the remaining houses was forty-four. In Nos. 8, 11, & 12 the inmates numbered nine, eight, and seven respectively. A report on the accommodation of these houses was furnished by the Inspector last year and is appended. About the middle of the lane there is a passage in which there are three W.C.'s. They are dark and somewhat confined, placed alongside a capacious ashpit which is at the disposal of all the tenants in the lane and the tenant at No. 17 Eden Place. Two taps placed outside in the lane supply this property with water from the city main. At No. 19 Eden Place on the front there is a privy midden and the family here uses pump water. A drain from the wash-house

passes close to the pump in the garden and discharges independently into the River Eden. The drain is of the ordinary tile variety.

Edentown—The twenty-nine houses which form the east side of Edentown are, with few exceptions, supplied with privy middens. There are twenty-two ashpits, thirteen of which are covered and nine open. These ashpits are mostly at a reasonable distance from the dwellings and are periodically emptied, although in a few cases the tenants stated that they had difficulty in getting the contents removed. In one house (No. 34) there is an inside W.C. flushed from a cistern containing rain water. Four houses in this neighbourhood (Nos. 56, 58, 60, and 62) have hand-flushed water closets. In the majority of cases the town's water is laid on, but no fewer than twelve households get their supply from pumps, viz., Nos. 4, 14, 22, 24, 26, 34, 36, 48, 56, 58, 60, and 62. All these houses drain into a sewer which runs down a back street into Gosling Beck. In one case (No. 6) a drain runs underneath the house from back to front, discharging into the Edentown Sewer. There are three isolated properties at the foot of Edentown, one of which has W.C. inside and outside flushed from the mains: in the others the privy and covered ashpit exists, and the inmates get their supply from separate pumps.

Returning now by the west side of Edentown we find at the bottom of the street (No. 47) an old property with privy and open ashpit. This house has no ostensible water supply and the interior is damp. No. 45 has an earth closet and is furnished with town's water. The two houses next adjoining (Nos. 43 and 41) have each a privy and covered ashpit placed well away from the houses. In both cases a drain passes underneath the dwellings to the sewer in the front street. From this point to the top of Edentown, (No. 39 to No. 1), comprising eighteen dwelling houses, all the tenants are supplied with W.C. accommodation. From

No. 37 to No. 27 (six houses) each has its W.C., from No. 23 to No. 13 (five houses) there are two W.C.'s, and from No. 11 to No. 1 (six houses) each has a W.C.

Hick's Terrace, Garden Street, and Strawberry Terrace—Three blind streets lead off this side of Edentown. The four houses in Hick's Terrace are supplied with three W.C.'s. In Garden Street Nos. 1 and 2 have W.C. accommodation, while the remaining houses in the street have privy and ashpit. There are four ashpits, two are covered and two open, and in one instance there is an open ashpit within a few feet of the dwelling house.

Strawberry Terrace—On the north side of Strawberry Terrace there are ten houses; three of these have W.C. accommodation and the remaining seven have privy and ashpits. Two of the ashpits are covered and the others, four in number, are open. The south side of Strawberry Terrace has six recently built dwelling houses and each has separate outside W.C. accommodation.

With the exception of the house at the foot of the Street, which has no apparent water supply, all the west side of Edentown gets its supply from the city mains.

Etterby Scaur—All the houses on Etterby Scaur, thirteen in number, and the Convent have W.C.'s and city water, except one, which has privy and ashpit and is supplied with water from a pump.

SUMMARY OF REPORT.

A consideration of the foregoing statement shews that whereas in Edentown the two methods of dealing with the disposal of excreta appear to be about evenly balanced, in Stanwix the privy ashpit system predominates.

Ashpits—All the more recent ashpits as well as many of older date are properly constructed and free from objection. It must, however, be pointed out that a large number of the existing ashpits are faulty and defective. In many instances the ashpits are placed too near the houses, occasionally they are drained into the sewers, in a few, fortunately a very few, cases they are so awkwardly situated as to necessitate the removal of their contents through the interior of the dwellings, while in a very large number of instances they are uncovered to the weather, built deeply into the ground, and with floors which are innocent of flagging. When such ashpits are emptied the surrounding soil soaks into them, causing an offensive nuisance, and when they are almost full their contents percolate into the neighbouring ground. The gravity of this condition is increased in the case of many households who derive their water supply from pumps which are within easy range of pollution, and it is difficult to understand how under the circumstances a supply from such a source can escape contamination. It appears from the previous part of the report, that there are between twenty and thirty pumps in the district supplying water to about fifty families. All ashpits should be roofed over to keep out the rain, ventilated, and spouted, their floors properly flagged or ashphalted, and their walls made water tight. An analysis will shortly be made of the water from the various pumps, but it would be well if in the meantime householders who prefer a water from a pump with doubtful surroundings were advised to cultivate a taste for Carlisle water.

Another evil connected with the ashpit is the indiscriminate way in which it is made to serve as a receptacle for offensive refuse which it was never intended to receive. Stringent measures should be taken to deal with this abuse.

The present system of scavenging the ashpits is, as you are aware, vested in a contractor, who gives his services on being duly notified by the various tenants. The responsibility of the contractor is limited to the labour of removal, the hygiene of the ashpit is solely in the hands of the householder. It is gratifying to report that under this method the work of conservancy is in the main efficiently carried out. The system, however, is not without its defects. Thus, a difficulty sometimes arises where many families, as in the lanes, use the same ashpit. Each family throws the onus of notifying the contractor on its neighbour, or it may be they unite in attaching responsibility to the landlord. The result is the same—an overfilled and offensive ashpit. Clearly in cases like these official supervision is called for.

Again the work of refuse removal does not appear to be regulated by any time limit, and so it occasionally happens that a pile of refuse having been deposited on a front street is allowed to remain for an indefinite period, it may be many hours pending the arrival of the scavenger. Meanwhile the moisture of the heap evaporates, and the dried *debris* is blown about the street as a dangerous and offensive dust. This is a matter which can be easily remedied by restricting the removal of refuse to a limited time, preferably in the early hours of the morning. In Edentown, which is not included within the area of the contract, difficulty is sometimes experienced in getting the contents of the ashpit removed.

Waterclosets—It has already been stated that a considerable number of the houses in the district are accommodated with water closets. In Stanwix all the houses

on the estate of the Duke of Devonshire are so supplied, and these are connected with a separate system of sewerage, the general arrangement of which is shewn on the accompanying plan. In addition to these there are several houses in the village, about a dozen in all, which have W.C.'s draining into the sewers, while in Edentown about fifty per cent. of the houses are so supplied. In this neighbourhood four of the closets are hand-flushed, a risky arrangement which should not be permitted to exist, especially as the water mains are in the near vicinity.

Between the two modes of dealing with the disposal of excreta there can be no comparison in the present instance. The privy system, no matter how vigilant the supervision, will always be a source of trouble and probable risk to health. Stanwix is a waxing community, and has outgrown the conditions which make the continuance of such a system desirable, and it may confidently be affirmed that the sanitary interests of the inhabitants would best be served by the abolition of the privy ashpit, and the general adoption of the water carriage system of removing excreta. To make such a reform safe and successful three desiderata are wanting—an abundant supply of water, good sewers, and a proper method of disposal of the sewage. The unfortunate admission, however, must at once be made that these elementary premises cannot in the meantime be fulfilled. Thus with regard to the first condition the present supply of water to Stanwix and Edentown is intermittent and inadequate.

Drainage—Accompanying this report is a scheme of the present system of drainage which the following supplementary notes may help to explain.

The east end of the village, comprising part of Kell's Place and the Villa, is supplied with a six inch pipe, which begins opposite the middle of Kell's Place passes down the road beside the Villa, crosses the

Brampton Road and discharges into the River Eden. This sewer is not ventilated. The remainder of Kell's Place with Knowe Terrace, North View, and part of Church Street (east) drain into the Old Wall Knowe sewer (laid down between 20 and 30 years ago) which passes along the road beside the Nursery and joins the Scotland Road sewer at Knowefield Cottages. It is flushed with an Adam's automatic tank placed at the top of the hill. In the course of repairs, owing to a recent blocking of this sewer, it was found that the upper part of the sewer for a distance of two hundred yards was a nine-inch pipe which discharged into a six-inch pipe lower down. This sewer is laid too near the surface.

The Church Street sewer begins beside the Vicarage gate opposite Hodgson's Court. It is a six-inch pipe which joins the Duke's sewer at the top of Eden Mount. It is not ventilated.

The Duke's sewer, a twelve-inch pipe, passes down the front of Devonshire Terrace receiving in its way the sewage from Albert Place (in a six-inch pipe), and enters the River Eden close to the west side of the Bridges. There are three open gratings connected with it, otherwise it is not ventilated.

What is known as the Scotland Road sewer was laid by private enterprise about 10 years ago. It is a nine-inch earthenware pipe about 600 yards in length, beginning at Prospect Place, running the length of Scotland Road and discharging into a twelve-inch pipe opposite the Nursery gate at Knowefield. Connected with it there is a flushing tank at the high end, and a man hole near the Nursery gate, about thirty yards below which point the sewer enters Gosling Beck. This sewer is undersized and is laid too near the surface.

The north side of Etterby Street is supplied with a sewer which passes along the back of the houses and

discharges into the beck at the foot of the street. Originally it was a brick conduit from top to bottom, but about ten years ago the Rural Sanitary Authority removed the upper part of this conduit and substituted a nine-inch pipe, leaving the lower portion, about 100 yards in length, as it was, a twelve-inch brick conduit. It is proposed at present to flush this sewer, but before doing so it would be advisable to explore the condition of the brick conduit. A pipe for storm water runs down the front street.

The Edentown sewer was the subject of special enquiry by a Committee last year, and they found that "a brick sewer, 11 inches by 15 inches, runs the length of the street, which falls both ways from a point about one-third of its length, from Etterby Scaur. The southern section discharges by a separating chamber into the Eden, the northern into a nine-inch pipe. At intervals there are gully holes for surface water, which communicate with the sewer and form practically so many cesspools." The remedies suggested by the Committee were subsequently carried out, and in addition two flushing tanks were provided at the highest point so that each portion of the sewer could be efficiently flushed.

In addition to these main sewers it would appear that in several instances owners have laid down isolated drains in connection with their property. Cases of this kind have already been instanced—the drain from Stanwix House and the drain from the cesspool behind Kell's Place, where the pipes discharge on to a grating on the Brampton Road. Another of these independent drains is connected with the property immediately to the west of St. Martin's Lane. This drain discharges into the river, and quite recently, owing to a burst, it was the source of a nuisance to pedestrians on the Scaur.

There are of course many important matters relating to sewerage which do not come within the scope or instructions of this report, as, for example, whether connections are

correctly made, whether pipes are properly jointed, and whether they are laid with uniform gradients. Enough, however, has been said to show that the sewers in their present state are not adapted for the safe and successful installation of the water carriage system.

With regard to the third condition, namely, the question of sewage disposal, I can only endorse the opinion expressed in June of last year in the Report of the Committee on the Edentown sewer that "there can be no doubt that before long a comprehensive scheme for the proper disposal of the sewage of Stanwix will have to be considered and adopted." How to dispose of our sewage is the question of the hour. The Royal Commission will shortly deal with the whole system of sewage treatment. In several towns the biological system of sewage filtration is at present on its trial. In this connection it may be noted that the Health Authority of the City intend at an early date to put Mr. Dibdin's method to experimental test, and for this purpose bacteria tanks will be constructed on the Willow Holme. A convenient opportunity will thus be afforded of observing the results of the purification of sewage by this novel and interesting process.

In conclusion, my experience during the past four months may entitle me to indulge in a Parthian shot at the disagreeable state of the side paths in Stanwix in wet weather. The paving of a few of the principle footpaths would, I am sure, add materially to the health and comfort of the inhabitants.

I am,
 Mr. Chairman and Gentlemen,
 Your obedient Servant,
 JAMES MACDONALD.

Tabular Statement of the cases of Typhoid Fever in the Townships of Stanwix and Etterby and the localities in which they occurred from March 1st, 1891, to March 1st, 1898 (seven years).

1891	"Stanwix."
1892	Knowe Cottages.
1893	Do. do.
1894	Stanwix. St. Ann's Convent.
1895	Do. do. 7 Etterby Street (Duke's Estate).
1896	St. Ann's Convent
1897	Cavendish Mount (Duke's Estate).

Tabular Statement of the Cases of Diphtheria in the Townships of Stanwix and Etterby and the localities in which they occurred, from March 1st, 1891, to March 1st, 1898 (seven years).

1891	
1892	Etterby Street (four cases in one family here). "Stanwix." Edentown. Scotland Road.
1893	Edentown. The Villa, Stanwix. 7 Etterby Street. Etterby Street. Etterby Street. "Stanwix."

- 1894 13 Edentown.
Caledonian Buildings (two cases in one family here).
- 1895 St. Ann's Convent.
- 1896 Olive Mount, Etterby Scaur.
10 Etterby Street.
7 Garden Street, Edentown.
Scotland Road, Stanwix.
Scaur Bank Road, Edentown.
5 Caledonian Buildings, Edentown.
10 Cheviot Road, Stanwix.
19 Etterby Street (Duke's Estate).
- 1897 19 Caledonian Buildings.
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HOUSES, POPULATION, AND ACREAGE.

Stanwix Township.

Number of Houses, about	373.
Acreage	419.443 Acres.
Population, about ...	1,750.

Etterby Township.

Number of Houses, about	220.
Acreage	301.906 Acres.
Population, about ..	1,000.

